AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-26 (withdrawn)

Claim 27 (currently amended) An aortic catheter for segmenting and selectively perfusing an aorta comprising:

(a) an elongated shaft having a proximal end and a distal end, said elongated shaft of sufficient length to be inserted into an ascending aorta and guided transluminally such that the distal end is positioned in a descending aorta when in an operative position;

(b) a flow control regulator positioned on said elongated shaft such that when said distal end is in the operative position said flow control regulator is capable of at least partially occluding the descending aorta;

(c) a proximal portion of said elongated shaft having a corporeal perfusion lumen and an arch perfusion lumen, said corporeal perfusion lumen having a proximal end configured for connection to a perfusion pump and dimensioned to support corporeal

circulation and said arch perfusion lumen having a proximal end configured for connection to a perfusion pump and dimensioned to support arch circulation, said arch perfusion lumen terminating as at least one or more arch perfusion ports proximate to a patient's arch vessels when said distal end is in the operative position; and

(d) a distal portion of said elongated shaft extending beyond said proximal portion, terminating as at least one or more corporeal perfusion ports distal to said flow control regulator.

Claim 28 (original) The aortic catheter of claim 27, wherein said catheter shaft is from 4 and 30 cm in length.

Claim 29 (original) The aortic catheter of claim 27, wherein said corporeal perfusion lumen is connected to a 3/8 inch to 1/4 inch barb reducer for connection to a perfusion pump.

Claim 30 (original) The aortic catheter of claim 27, wherein said arch perfusion lumen is connected to a 1/4 inch barb connector for connection to a perfusion pump.

Claim 31 (original) The aortic catheter of claim 30, wherein said barb connector is coupled to a luer fitting for monitoring perfusion pressure.

Claim 32 (original) The aortic catheter of claim 29, wherein said barb reducer is coupled to a luer fitting for withdrawing fluid samples and injecting medications.

Claim 33 (original) The aortic catheter of claim 27, further comprising an actuation lumen, said actuation lumen having a proximal end coupled to an actuation source and a distal port in communication with said flow control regulator such that communication from said actuation source actuates said flow control regulator.

Claim 34 (original) The aortic catheter of claim 27, wherein said flow control regulator is a balloon.

Claim 35 (original) The aortic catheter of claim 34, wherein said balloon is made of a material selected from the group consisting of polymers and elastomers.

Claim 36 (original) The aortic catheter of claim 34, wherein said balloon has an inflated outer diameter of approximately 1.5 to 4.0 cm.

Claim 37 (original) The aortic catheter of claim 34, wherein said balloon has a radiopaque marker positioned within said balloon.

Claims 38-43 (withdrawn)

Claim 44 (original) The aortic catheter of claim 27, wherein said distal tip is configured to be temperature sensitive.

Claim 45 (original) The aortic catheter of claim 27, wherein said elongated shaft has a curvature configured to conform to a patient's aortic arch anatomy.

Claim 46 (original) The aortic catheter of claim 27, wherein said at least one arch perfusion port comprises approximately 1 to 16 external holes.

Claim 47 (previously amended) The aortic catheter of claim 27, wherein said at least one corporeal perfusion port comprises approximately 1 to 8 external holes.

Claims 48-72 (withdrawn)

Claim 73 (currently amended) An aortic catheter system for segmenting and selectively perfusing a patient's aorta comprising:

an elongated shaft, said elongated shaft having an arch perfusion lumen configured for support of the arch circulation and in fluid communication with an arch perfusion port, a corporeal perfusion lumen configured for support of the corporeal circulation and in fluid communication with a corporeal perfusion port and a flow control regulator positioned between said arch perfusion port and said corporeal perfusion port, said elongated shaft is introduced through the ascending aorta and is configured to be

advanced transluminally such that when in the operative position said flow control regulator resides in the descending aorta and is configured to prohibit substantial blood flow through the aorta; and

a cardiopulmonary bypass machine coupled to said arch perfusion lumen and said corporeal lumen and capable of providing cold and warm oxygenated blood to the patient.

Claim 74 (currently amended) An aortic catheter system for segmenting and selectively perfusing a patient's aorta, comprising:

an elongated shaft having a blood flow lumen in fluid communication with an arch perfusion port and a corporeal perfusion port, a flow control regulator positioned between said arch perfusion port and said corporeal perfusion port, said elongated shaft configured to be advanced transluminally such that when in the operative position said flow control regulator resides in the descending aorta and is configured to prohibit substantial blood flow in the aorta;

means for providing oxygenated blood to the patient <u>via said corporeal perfusion port and said arch perfusion port</u>; and

means for at least partially occluding the ascending aorta.

Claim 75 (original) The aortic catheter system for segmenting and selectively perfusing a patient's aorta of claim 74, further comprising:

a venous cannula having a drainage lumen connected to a cardiopulmonary bypass system.

Claim 76 (original) The aortic catheter system for segmenting and selectively perfusing a patient's aorta of claim 74, wherein the arch perfusion lumen and the corporeal perfusion lumen are in a coaxial relationship.

Claim 77 (original) The aortic catheter system for segmenting and selectively perfusing a patient's aorta of claim 74, wherein means for at least partially occluding the ascending aorta is a cross-clamp.

Claims 78-80 (withdrawn)